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PATENT, TRADEMARK, COPYRIGHT
 AND UNFAIR COMPETITION LAW
 AND RELATED LITIGATION

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 EDWARD B. EVANS 1936-1971

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January 21, 2003

FACSIMILE COVER SHEET

To: Examiner Jose H. Alcala
 Assistant Commissioner for Patents
 Washington, D.C. 20231

From: Scott A. Stinebruner
 Reg. No. 38,323

Fax: 703-872-9319

Re: U.S. Patent Application
 Serial No. 09/924,711
 Filed: August 8, 2001
 Applicant: Mark Kenneth Hoffmeyer et al.
 Art Unit: 2827
 Confirmation No.: 3332
 Our Ref: IBM/145DV1

Enclosures:

Fax Cover Sheet containing Certificate
 of Facsimile Transmission
 Transmittal containing Certificate of
 Facsimile Transmission
 Response After Final

Pages: 8 (including cover sheet)

MESSAGE/COMMENTS
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CERTIFICATE OF FACSIMILE TRANSMISSION

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I hereby certify that this correspondence and the enclosures noted herein (8 total pages) are being transmitted via facsimile transmission to Examiner Jose H. Alcala, Assistant Commissioner for Patents, Washington, D.C. 20231 at 703-872-9319 on January 21, 2003.

Judith L. Volk
 Judith L. Volk

January 21, 2003
 Date

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PATENTAtt'y Docket No. IBM/145DV1/124
Confirmation No. 3332**CERTIFICATE OF FACSIMILE TRANSMISSION**

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Judith L. Volk
Judith L. Volk

January 21, 2003
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Mark Kenneth Hoffmeyer et al. Art Unit: 2827
Serial No.: 09/924,711 Examiner: Jose H. Alcala
Filed : August 8, 2001
For : PROCESSING OF CIRCUIT BOARDS WITH PROTECTIVE, ADHESIVE-
LESS COVERS ON AREA ARRAY BONDING SITES

Box AF
Assistant Commissioner for Patents
Washington, DC 20231

AMENDMENT TRANSMITTAL

1. ☒ Transmitted herewith is a Response After Final.
2. ☐ Small Entity status of this application under 37 CFR 1.9 and 1.27 has been established by a verified statement previously submitted.
- ☐ Enclosed is a verified statement to establish Small Entity status
- ☒ Other than a Small Entity

3. The fee has been calculated as shown below:

CALCULATION OF FEES

Fee:	Number of Claims After Amendment:		Previously Paid For:	No. Extra:	At Rate:	Amount:
Total Claims	16	minus	20	0	\$18	\$0.00
Independent Claims	2	minus	3	0	\$84	\$0.00
MULTIPLE DEPENDENT CLAIM FEE					\$280	\$0.00
TOTAL FEE FOR CLAIMS:						\$0.00

- ☒ No additional fee for claims is required.

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4. ☐ Attached is a check in the sum of \$_____ for additional claims.
☐ Please charge my Deposit Account No. 23-3000 in the amount of \$_____.

5. **The proceedings herein are for a patent application and the provisions of 37 CFR 1.136 apply. Complete (a) or (b) as applicable.**

- ☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 for the total number of months checked below:

	<u>Ext. Mos.</u>	<u>Large entity</u>	<u>Small entity</u>
<input type="checkbox"/>	one month	\$ 110.00	\$ 55.00
<input type="checkbox"/>	two months	\$ 410.00	\$ 205.00
<input type="checkbox"/>	three months	\$ 930.00	\$ 465.00
<input type="checkbox"/>	four months	\$1,450.00	\$ 725.00
<input type="checkbox"/>	five months	\$1,970.00	\$ 985.00

Extension fee due with this request:

\$ _____

Method of Payment:

Check enclosed in the amount of \$ _____

If an additional extension of time is required, please consider this a petition therefor.

(Check and complete the next item, if applicable)

- ☐ An extension for _____ months has already been secured and the fee paid thereof of \$_____ is deducted from the total fee due for the total months of extension now requested. Extension fee due with this request \$_____.

OR

- ☒ (b) **Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.**

6. ☒ **If any additional fee for claims or extension of time is required, charge Account No. 23-3000.**

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.

By:



Scott A. Stinebruner
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Enclosed:

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Response After Final

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PATENT

IBM/145DV1
Confirmation No. 3332**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Mark Kenneth Hoffmeyer et al. Art Unit: 2827
Serial No.: 09/924,711 Examiner: Jose H. Alcala
Filed: August 8, 2001 Atty. Docket No.: IBM/145DV1
For: PROCESSING OF CIRCUIT BOARDS WITH PROTECTIVE, ADHESIVE-
LESS COVERS ON AREA ARRAY BONDING SITES

RESPONSE AFTER FINAL**FAX RECEIVED**

Box AF
Assistant Commissioner for Patents
Washington, DC 20231

JAN 21 2003

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Sir:

This paper is submitted in reply to the Office Action dated November 6, 2002, within the three month period for response. Moreover, as no amendments are presented herein, Applicants respectfully submit that new issues are raised by this paper, and thus the remarks presented herein are appropriate for consideration by the Examiner after final. Reconsideration and allowance of all pending claims are therefore respectfully requested.

In the subject Office Action, claims 11-12, 19-21, 23-26, and 29-31 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,750,092 to Werther. Claims 22 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Werther in view of U.S. Patent No. 5,413,489 to Switky, while claims 28 and 32 were rejected under 35 U.S.C. §103(a) as being unpatentable over Werther.

Applicants respectfully traverse the Examiner's rejections to the extent they are maintained.

As an initial matter, Applicants wish to thank the Examiner for the consideration granted in a telephone interview conducted on January 15, 2003. In the interview, the distinctions between claims 11 and 19 and Werther were generally discussed. Moreover, Applicants respectfully submit that the arguments presented hereinafter, coupled with

those presented during the telephonic interview, are sufficient to overcome the Examiner's rejections, and that the case is now in condition for allowance. However, if the Examiner does feel there are any additional issues that need to be addressed prior to the Examiner's next communication, the Examiner is encouraged to contact the undersigned at the telephone number provided below.

Now turning to the subject Office Action, and specifically to the rejection of independent claim 11, this claim recites an assembly comprising a circuit board, an area array bonding site on a surface of the circuit board, and a protective cover overlaying the bonding site. The protective cover is removably registered to the bonding site by a plurality of posts secured to one of the protective cover and the circuit board into a plurality of apertures disposed in the other of the protective cover and the circuit board. Moreover, the protective cover is non-conductive throughout at least a region thereof that overlays the bonding site.

As noted in the interview, and as described in the Application, the structure of claim 11 is used to protect sensitive area array bonding sites from contamination during manufacture, and prior to mounting of active surface mounted components such as integrated circuit (IC) packages. Consistent with the contamination-prevention nature of the claimed protective cover, the cover is non-conductive throughout the region of the bonding site that is being protected by the cover.

Werther, on the other hand, discloses a package structure that is utilized to interconnect a semiconductor chip to a circuit board. In particular, Fig. 1 of Werther discloses an injection molded pin grid array 30 having a "picture frame" array of conductive pins 31 that are used to electrically interconnect the semiconductor chip to a circuit board. The manner in which this is accomplished is via a conductive pattern 24 and an array of conductive pin recesses 21 formed in a base 20. A semiconductor chip is mounted to base 20, and the conductive pattern 24 includes traces that extend from specific I/O pads on the semiconductor chip to specific pin recesses 21. As a result, when pin grid array 30 is aligned over base 20, the conductive pins 31 in the array are received in the pin recesses 21, thus completing the electrical interconnection with the

semiconductor chip. The pin grid array 30 and base 20 are thereafter ultrasonically welded to one another to complete the package. After welding, the opposite ends of the conductive pins 31 remain exposed for the purpose of electrically and mechanically connecting the package to a circuit board.

The Examiner apparently analogizes pin grid array 30 to a protective cover within the context of claim 11. However, while pin grid array 30 is formed of a molded, and presumably non-conductive material, the specific nature of this body in conducting electrical signals between a semiconductor chip and a circuit board in use precludes its utilization as a "protective cover" as is required by claim 11.

In particular, the Examiner will note that the structure on top of base 20, which the Examiner analogizes to a bonding site, comprises the conductive pattern 24, as well as the array of conductive pin recesses 21. This region extends nearly across the entire top surface of base 20. More importantly, however, the pin grid array 30 is not non-conductive throughout this entire region, given that the conductive pins 31 by necessity must overlap and align with their corresponding pin recesses 21 (which fall within the area of the bonding site).

As such, Werther does not disclose a "protective cover being non-conductive throughout at least a region thereof that overlays [a] bonding site", as is recited in claim 11 as is currently reads.

Furthermore, as discussed at col. 4, lines 50-54 of Werther, the pin grid array 30 of Werther is secured to base 20 via an adhesive or ultrasonic weld. Therefore, Werther also fails to disclose a protective cover that is "removably registered to [a] bonding site", as is also recited in claim 11.

Claim 11 is therefore novel over Werther, and the rejection thereof should therefore be withdrawn.

Claim 11 is also non-obvious over Werther, as there is no suggestion in the art to modify the pin grid array of Werther to either be (1) non-conductive throughout a region that overlaps a bonding site, or (2) removably registered to its matching base. Indeed, modifying the Werther assembly in this manner would destroy its intended functionality,

and render the modified assembly useless for its intended application. Were no conductive material provided in the region of pin grid array 30 that overlaps the bonding site on base 20, the semiconductor chip would effectively be incapable of receiving or transmitting electrical signals externally from the package within which it is housed. Moreover, permitting pin grid array 30 to be removed from base 20 would potentially introduce significant reliability issues for the package.

Furthermore, Werther is directed to an entirely different problem than that of protecting a bonding site from contamination during manufacture. As such, one of ordinary skill in the art would not look to Werther to provide contamination protection for a bonding site in the manner recited in claim 11.

Applicants therefore respectfully submit that claim 11 is also non-obvious over the prior art of record. Reconsideration and allowance of this claim, as well as of claims 12 and 23-29 which depend therefrom, are therefore respectfully requested.

Next, with respect to independent claim 19, this claim recites a cover for protecting an area array bonding site on a surface of a circuit board, where the circuit board has a plurality of apertures. The cover includes a base member having a first face and a second face, and shaped to at least correspond to the area array bonding site. The cover additionally includes a plurality of posts coupled to the first face and registered for the plurality of apertures. Moreover, as with claim 11, claim 19 recites that the base member is non-conductive throughout at least a region thereof that is configured to overlay the bonding site. Thus, this claim also highlights the principal nature of the cover as a temporary, protective device used during manufacture of a circuit board to protect a bonding site from contamination.

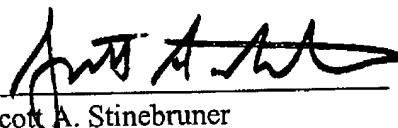
As noted above in connection with claim 11, Werther does not disclose or suggest a configuration whereby a protective cover, and in particular, a base member thereof, is non-conductive throughout a region that overlays a bonding site. Therefore, claim 19 is patentable over Werther for the same reasons as presented above for claim 11. Reconsideration and allowance of this claim, as well as of claims 20-22 and 30-32 which depend therefrom, are respectfully requested.

In summary, Applicants respectfully submit that all pending claims are novel and non-obvious over the prior art of record. Reconsideration and allowance of all pending claims are therefore respectfully requested. If the Examiner has any questions regarding the foregoing, or which might otherwise further this case onto allowance, the Examiner may contact the undersigned at (513) 241-2324. Moreover, if any other charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,

21 JAN 2003

Date



Scott A. Stinebruner

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